Atty Docket No.: MFL-004
Atty: William R. Haulbrook, Ph.D.
Express Mail Mailing Label No.: EV 093438247 US
SHEET 1 OF 12 1/12 FIG. 1 **100 PROCESS INPUT** 104 PROCESS MODEL FLOW CHARACTERIZATION 106 i.e., v, P, T 108 TWO-PHASE MODEL 110 112 **AMORPHOUS** SEMI-CRYSTALLINE PHASE MODEL PHASE MODEL CRYSTALLIZATION KINETICS MODEL 114 MORPHOLOGICAL CHARACTERIZATION 116 i.e., α , c, $\langle uu \rangle$ MATERIAL PROPERTY PREDICTION 118 i.e., $\eta(\alpha)$, $\rho(\alpha)$, $\upsilon(\alpha)$, σ , τ , λ , C_{ijkl} , G', G''120 LAST TIME STEP? NO YES 122 OR (OPTIONALLY) DONE FURTHER MATERIAL PROPERTY PREDICTION i.e., C_{ijkl} , G', G''.

Title: Apparatus and Methods for Predicting Properties of

Processed Material Inventors: Zheng et al. Serial No.: Not yet assigned

Title: Apparatus and Methods for Predicting Properties of Processed Material Inventors: Zheng et al. Atty: William R. Haulbrook, Ph.D.

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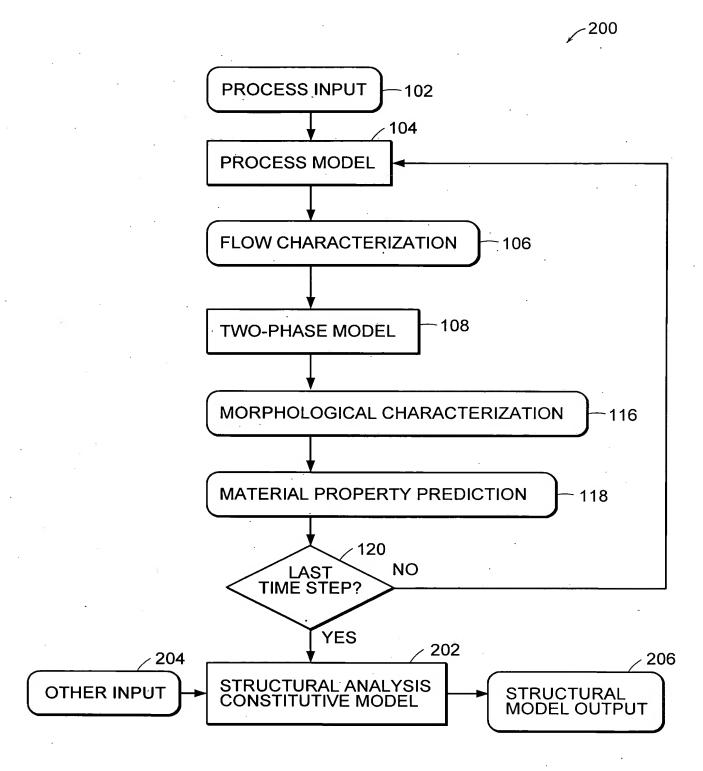


FIG. 2

Title: Apparatus and Methods for Predicting Properties of Processed Material Inventors: Zheng et al.
Serial No.: Not yet assigned
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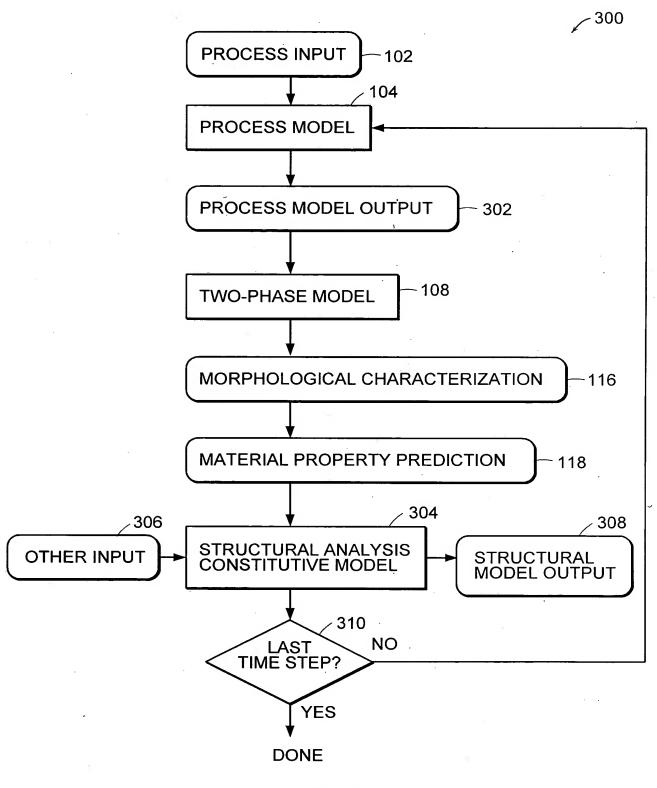


FIG. 3

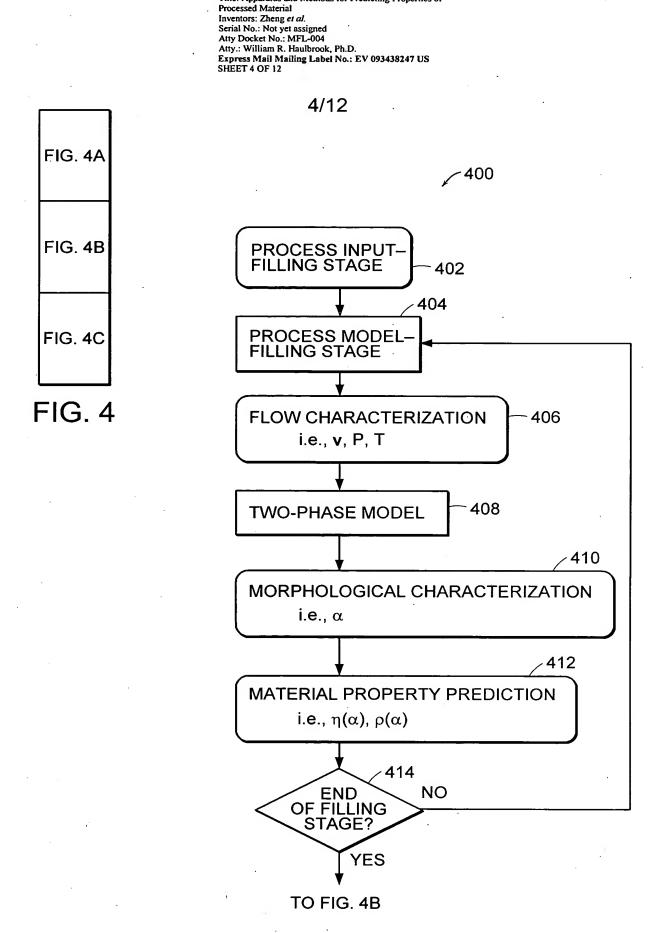


FIG. 4A

Title: Apparatus and Methods for Predicting Properties of Processed Material Inventors: Zheng et al. Serial No.: Not yet assigned Atty Docket No.: MFL-004

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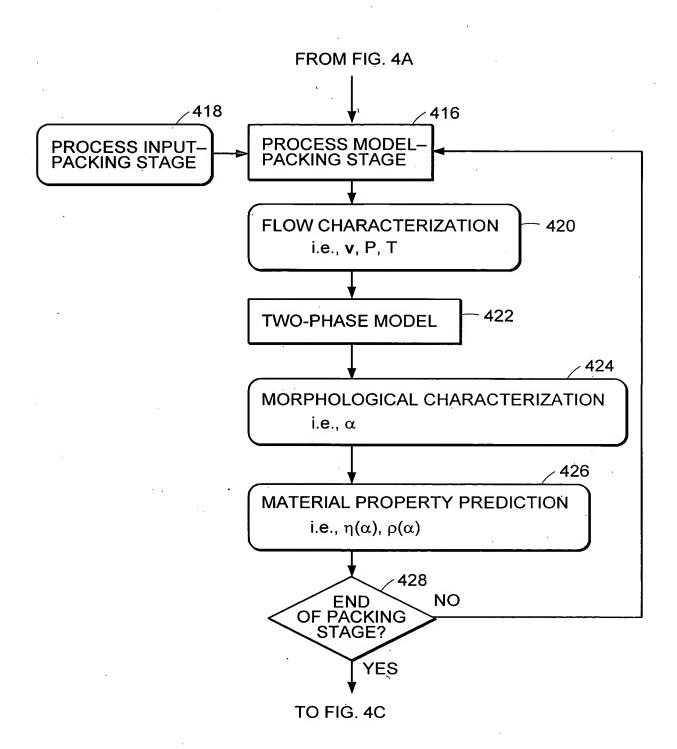
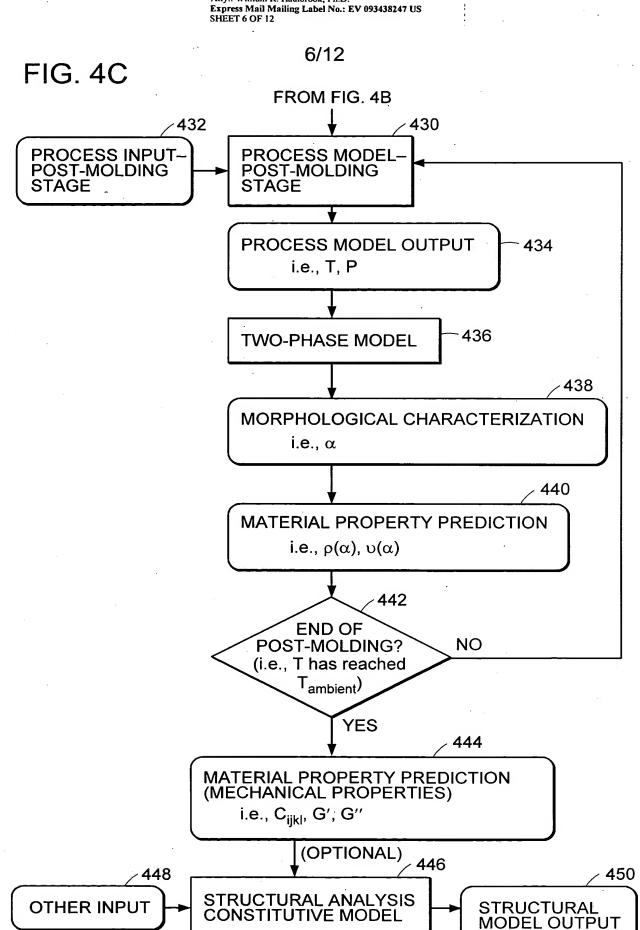


FIG. 4B

Title: Apparatus and Methods for Predicting Properties of Processed Material Inventors: Zheng et al. Serial No.: Not yet assigned Atty Docket No.: MFL-004 Atty.: William R. Haulbrook, Ph.D. Express Mail Mailing Label No.: EV 093438347 US



Title: Apparatus and Methods for Predicting Properties of Processed Material Inventors: Zheng et al. Serial No.: Not yet assigned Atty Docket No.: MFL-004 Atty.: William R. Haulbrook, Ph.D. Express Mail Mailing Label No.: EV 093438247 US SHEET 7 OF 12



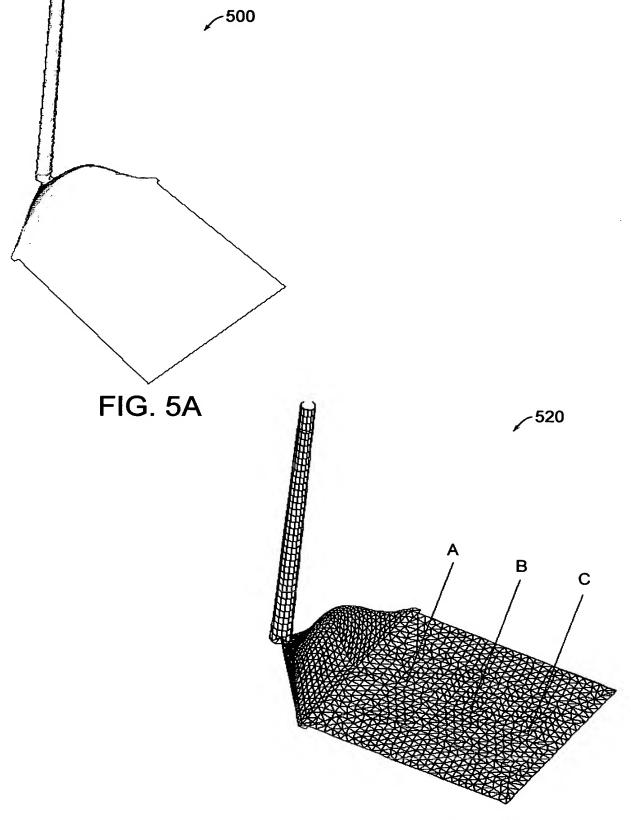


FIG. 5B

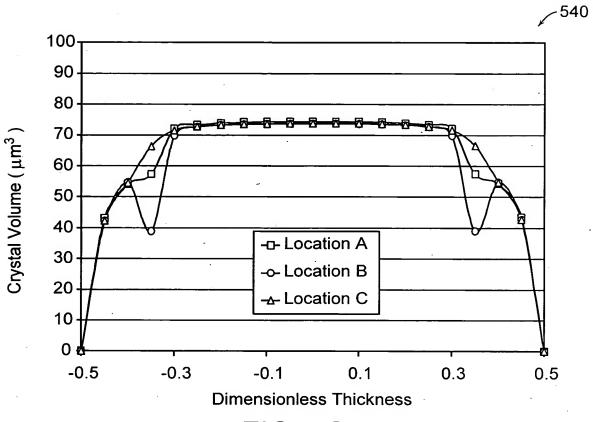
Title: Apparatus and Methods for Predicting Properties of Processed Material

Inventors: Zheng et al.
Serial No.: Not yet assigned
Atty Docket No.: MFL-004
Atty.: William R. Haulbrook, Ph.D.

Express Mail Mailing Label No.: EV 093438247 US

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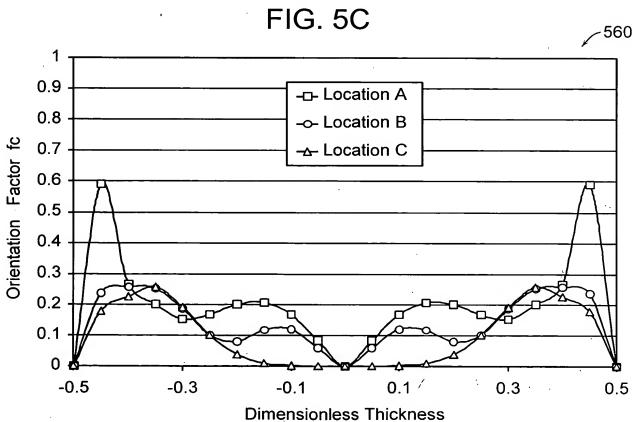


FIG. 5D

Processed Material Inventors: Zheng et al. Serial No.: Not yet assigned Atty Docket No.: MFL-004 Atty.: William R. Haulbrook, Ph.D.

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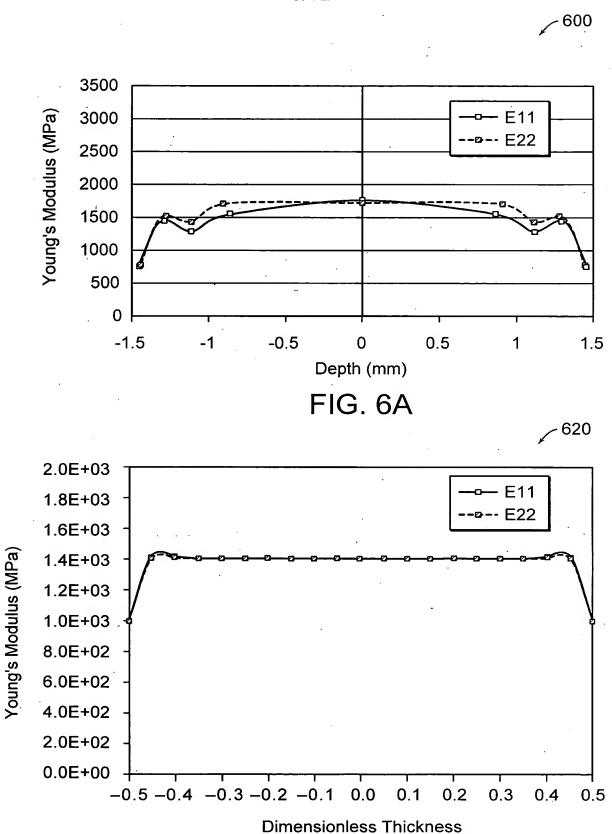


FIG. 6B

Processed Material
Inventors: Zheng et al.
Serial No.: Not yet assigned
Atty Docket No.: MFL-004
Atty.: William R. Haulbrook, Ph.D.

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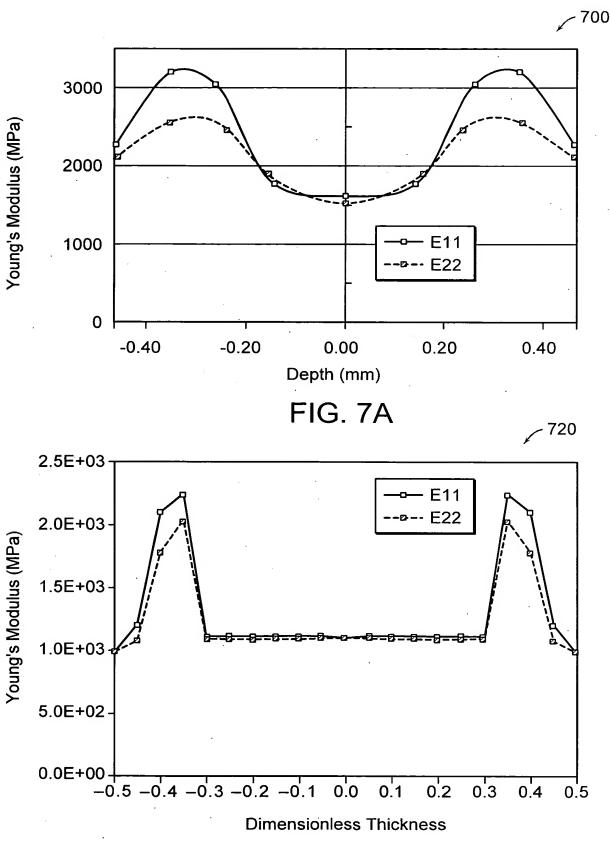
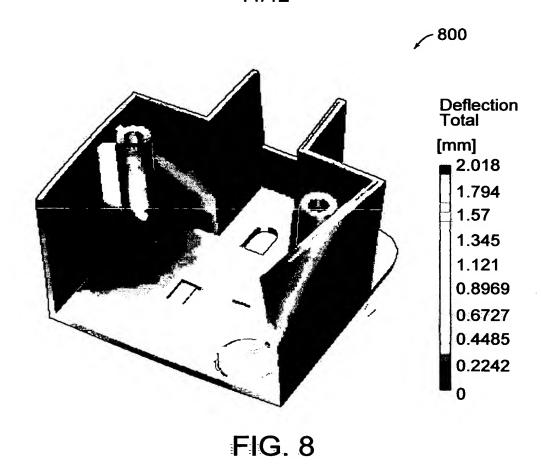


FIG. 7B

Processed Material
Inventors: Zheng et al.
Serial No.: Not yet assigned
Atty Docket No.: MFL-004

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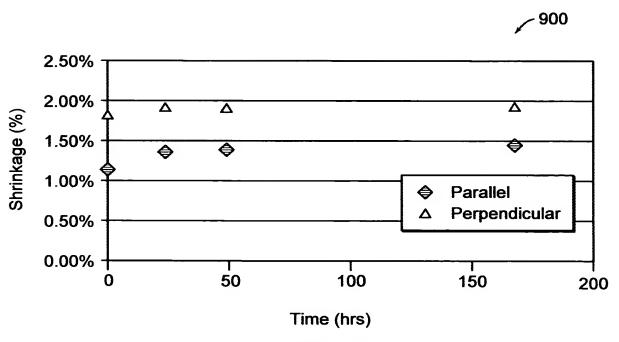


FIG. 9

Title: Apparatus and Methods for Predicting Properties of Processed Material Inventors: Zheng et al.
Serial No.: Not yet assigned
Atty Docket No.: MFL-004
Atty.: William R. Haulbrook, Ph.D.
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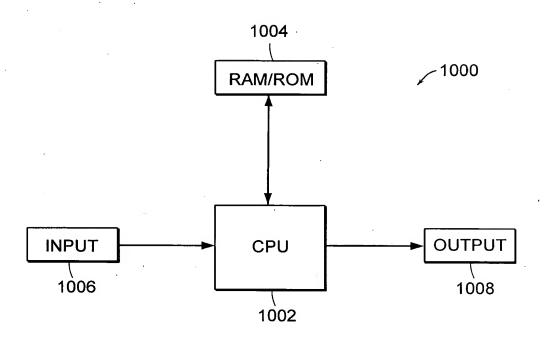


FIG. 10